

Winemaking Case History

2011 Sparkling Western Iowa St. Pepin

Fruit source: Doug Grave, [Victorian Vineyards](#), Glenwood, Iowa (Loess Hills).
Took delivery of 10 gallons of settled/sulfated St. Pepin juice on Sat., 9/10/2011.
St. Pepin chosen as the base cuvée for a sparkler because of its lack of strong hybrid aromas and its relatively clean/austere flavor profile.

Stylistic goals: Looking to achieve a clean/fresh sparkler that could be served as dry as possible.

Prefermentation numbers: BRIX = 17.5 TA = 9.2 g/L pH = 3.16 YAN = 214 mgN/L (formol)

Sat 9/10/11 4 gal of juice transferred to 5 gallon glass carboys (fitted with “blow off” tubes)
Pectin enzyme added (1/2 tsp per gallon)
Chapitalized up to 18 Brix (OBRIX=18 for refractometer assessments of progress)
 Sugar addition (lbs/gal) = 0.125(Target brix-original brix)
 ¼ lb sugar added to each 4 gallon batch

Pitched yeast:

5g **EC-1118** yeast per carboy + 6g **GOFERM**
(standard yeast hydration/temperature equilibration protocol)
(made one large starter with 20g EC-1118 then distributed evenly)

Sun 9/11 8AM **Opti-White** addition (1.9 g/gal)
 FT-Blanc Soft Tannin addition (0.5g/gal)

Yeast nutrient calculation:

Decided to add 33 PPM YAN (increase to 247 from original 217)
0.25g/L x 4gal x 3.785 L/gal = 4g **Fermaid-K** per carboy
(since Fermaid-K is 13% N by weight then 0.25 g/L x 130 mg N/g = 33 PPM)
Half to be added on day one and the other half at 1/3 sugar depletion
[Next time...bump YAN all the way up to 300 PPM to minimize H₂S \(see below\)](#)

Sun 9/11 11AM First Fermaid-K dose added (2g)

5PM All carboys showing clear signs that fermentation has started

Refractometer-based Log of Fermentation Progress (OBRIX=18)

	Mon 9/12 9AM		Wed 9/14 8AM		Fri 9/16 4PM		
	<u>RBRIX</u>	<u>SG</u>	<u>RBRIX</u>	<u>SG</u>	<u>RBRIX</u>	<u>SG</u>	<u>2nd Fermaid-K addition</u>
Carboy 1	15.0	1.051	6.0	0.993	5.5	0.990	9/12 9PM
2	16.7	1.062	7.5	1.002	5.5	0.990	9/13 6AM
3	16.3	1.060	6.5	0.996	5.5	0.990	9/13 6AM

- Thurs 9/15 Just a “whiff” of H₂S (especially carboy #2)
- Sat 9/17 Racked to clean carboys; added **30 PPM SO₂** (via KMETA)
(need to use minimal KMETA for sparkling cuvée)
- Sun 9/18 Wine still has some H₂S stink
Added 4 ml/gal **BOCKSIN** to all batches.
BOCKSIN is no longer available in the USA
Maintain a supply of REDULEES for early treatment of H₂S
Next time making St. Pepin, bump YAN all the way up to 300 PPM
- Sun 9/18 Residual sugar test (**Clinitest**) = 0.05% (almost completely dry)
- Sat 9/24 Racked-off gross lees to fresh carboys under air locks
Sweet odor; no H₂S smell (Good news!)
- Sun 10/2 Free SO₂ levels ranged between 7-10 PPM
Bumped carboys up to **20 PPM SO₂** (via small KMETA additions)
- Sat 11/5 All wine is very slow to clarify.
Decided to argon gas rack and add **40 PPM SO₂** to protect wine during this slow clarification process. Layer of tartrate crystals left behind in carboys.
Next time may want to add SO₂ but skip the racking procedure
- Wed 12/21 Wine still has not fallen bright. Decided to initiate moderate bentonite fining.
Gas racked to fresh carboys w/o any additional SO₂ (Green tint after racking).
Treated with **0.5 g/L bentonite** and stirred for 2 minutes.
Sensory evaluation:
Structured; good acid level; yeasty flavors
Moderate-to-good mouthfeel; little varietal flavor (quite neutral)
This wine appears to be very suitable for a sparkling cuvée .
- Tues 12/27 Carboy #1 (5 gallons of cuvée)
Placed in 20F refrigerator for cold stabilization/bentonite lees compaction
- Sun 1-8-12 Removed carboy #1 from cold stabilization
Argon gas racked to fresh container (distinct green hue; looks quite clear)

Carboy #2 treated with 0.5 g/L bentonite and placed in cold stabilization (20F)

Secondary (in-bottle) Fermentation

Preparation of yeast starter for 2nd fermentation:

Transfer 750 ml of cuvée to bottle and set aside for toff

Transfer 3L of cuvée to 1 gal jug and aerate

Dissolve 1.5 cups of sugar into the 1 gal jug

(theoretically yields 60 PSI based on 10 PSI per ¼ cup per 5 gal cuvée)

Add 1 tsp Fermaid-K yeast nutrient to jug

Rehydrate 5g EC-1118 yeast (standard protocol)

Thurs 1/12 7M Pitch yeast into sweetened starter jug

Add fermentation lock

Leave jug in kitchen for warmth (70F)

Fri 1/13 10AM Slow bubbling in air lock of starter jug

Sat 1/14 10AM Slow bubbling; moved jug to basement for temperature equilibration

8PM Still bubbling slowly; stirred starter into 5 gal carboy of cuvée and topped-off with 750 ml set-aside; affixed air lock

Mon 1/16 No sign of fermentation in 5 gal of cuvée ; stirred lees

Tues 1/17 7PM Slow bubbling in air lock observed (1 every 2 min)

Thoroughly stirred cuvée to suspend yeast and transferred to sparkling wine bottles:

7.5 ml of 5% bentonite slurry added as **riddling aid** (per bottle)

[This was TOO MUCH BENTONITE...See below.](#)

Splash filled sparkling bottles via gravity siphon

Added bidules

Sealed with crown caps (Marked caps with the numeral "1")

Notes: 6 experimental bottles contained NO BENTONITE (marked with "blue tape")

[Capper for Italian floor corker proved to be unreliable; Ogata capper worked much better.](#)

Carboy #2 treated the same as carboy #1 (as follows):

12/12 Bentonite fining

1/8 Cold stabilization begins

1/22 Removed from cold stabilization

1/23 Gas racked off the bentonite lees/tartrate crystals

1/31 Pitched secondary yeast starter (with priming sugar)

2/1 Bottled/capped wine for secondary fermentation (marked caps with "2")

[Experiment: Added 12.5 ml/gal of glycerin to the cuvée prior to bottling](#)

Wed 2/2 **TA = 8.5 g/L** at bottling

Bottles were "roused" every few days during first 2 months of secondary fermentation

Evaluation of Sparkling Wine

Sun 7/8/12 "Riddled" several bottles with "tops up" instead of in "down" position since bentonite riddling aid "overdose" resulted in too great a quantity of lees for standard "freeze plug" disgorgement.

Chilled wine and carefully decanted into 4 flutes.

Sensory evaluation:

Cremant-like bubbles; very nice "clean" flavor profile

Little or no hybrid varietal character and just a bit of yeasty nose

Naturél (no sweetening) is the way to go with this wine

Excellent overall results...A great success to be sure!

Lessons Learned

Too much bentonite was used as a riddling aid. Next time, use only about 10% as much bentonite; or, try one of the proprietary bentonite/alginate blends that have been especially developed for automated riddling processes. Noted that bentonite treated wine riddled from glass walls more cleanly than experimental bottles without added bentonite (Although this was a very small difference).

Not enough bubbles. Next time increase the amount of priming sugar to yield 80 PSI (e.g., 80 PSI x 0.005 cups sugar/PSI/gallon x 5 gal cuvee = 2 cups priming sugar).

Follow-up Results:

During 2012 we made a batch of **sparkling Cayuga wine** in which the priming sugar quantity was increased to yield 80 PSI CO₂ and the bentonite riddling aid was replaced with **Sekt-Klar plus** (0.7 ml per 750 ml bottle). These changes greatly improved the "bubblyness" of the wine and resulted in trouble-free riddling and disgorgement. *Sekt-Klar plus* is an alginate blend that is not readily available in the USA. It was purchased from a website in Germany (see <http://www.schnapsbrenner.eu>).

Aging Potential

In December 2012, freshly disgorged sparkling St. Pepin from this batch was decanted and sampled. The wine was not quite as "fresh" tasting nor enjoyable as it appeared in the summer of 2012. However, by May 2013, the additional time for yeast "autolysis" resulted in a creamier, more nuanced wine that was remarkable in its flavor and complexity. Unfortunately, we'll never know how it may have continued to develop as this delicious wine has all been consumed. It was good to the last drop! However, I plan to vinify 40 gallons of sparkling St. Pepin from the 2013 harvest and will set aside enough to more fully assess its aging potential. Stay tuned.